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SONY KE-50MR1 SERVICE MANUAL

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KE-50MR1/50MR1E/MR50M1

PANEL MODULE SERVICE MANUAL

PDP Module Name

NP50C3MF01
NP50C4MF01

KE-50MR1 AEP Model
KE-50MR1 K Model
KE-50MR1E HK Model
KE-50MR1E ME Model
KE-MR50M1 CH Model

FLAT PANEL COLOR TV

SONY®

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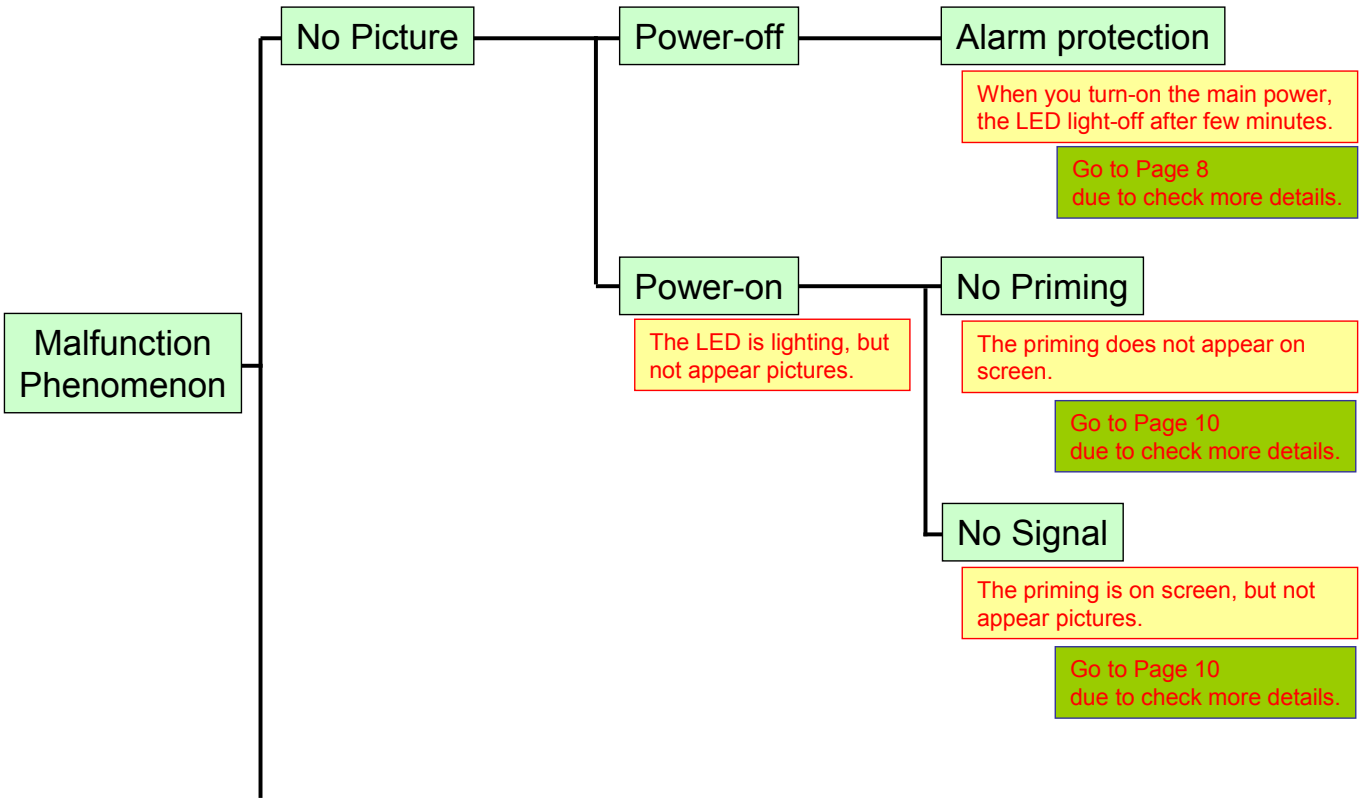
PDP (NP series) Confirmation Common Manual

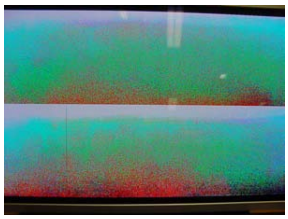
Ver.1

PDP Malfunction Phenomenon


Malfunction Phenomenon
No Picture
Power-off
Alarm protection
When you turn-on the main power, the LED light-off after few minutes.
Go to Page 8 due to check more details.
Power-on
The LED is lighting, but not appear pictures.
No Priming
The priming does not appear on screen.
Go to Page 10 due to check more details.
No Signal
The priming is on screen, but not appear pictures.
Go to Page 10 due to check more details.

PDP Malfunction Phenomenon

- Abnormal Screen
  - Abnormal Color



No lighting sell are on screen at white pattern.

Go to Page 11
due to check more details.

  - Abnormal Block

Colorful blocks appear on screen at color bar pattern.

Go to Page 11
due to check more details.

PDP Malfunction Phenomenon

- Vertical
  - Vertical Line
    - Single Line

Only one line is always lighting.

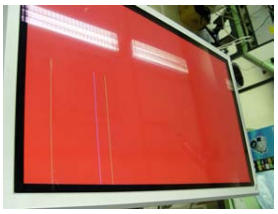
Go to Page 12
due to check more details.

    - Two Lines

two lines are lighting.

Go to Page 13
due to check more details.

    - Many Lines



Many lines are lighting.

Go to Page 14
due to check more details.

PDP Malfunction Phenomenon

- Vertical
  - Vertical Block
    - One Black Block

One block is always no-lighting by one IC.

Go to Page 15 due to check more details.

    - One Zebra Block

Zebra block appears by one IC.

Go to Page 16 due to check more details.

    - Many Black Blocks

Many block appear by one data relay board.

Go to Page 16 due to check more details.

PDP Malfunction Phenomenon

- Horizontal
  - Horizontal Line
    - One Black Block

One black line appears on screen.

Go to Page 17 due to check more details.

    - Two Lines

Two lines appear on screen.

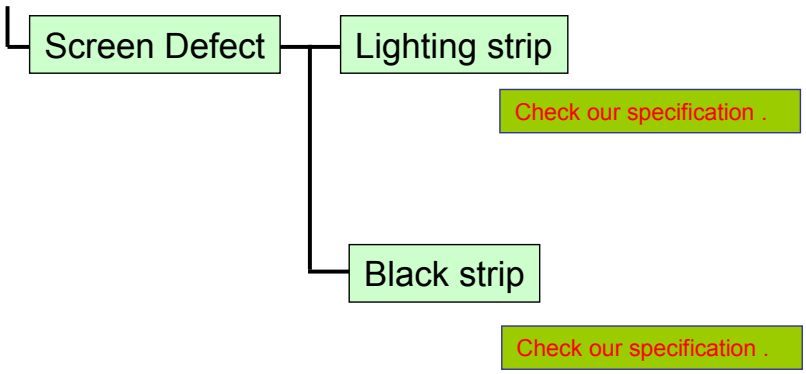
Go to Page 18 due to check more details.

  - Horizontal Block

Half block does not go out.

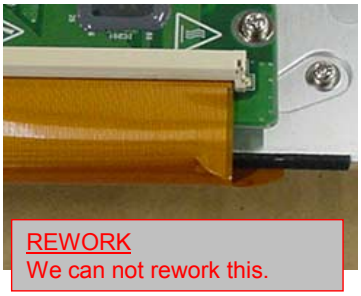
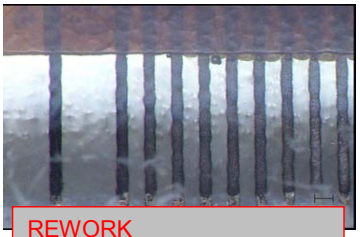
Go to Page 19 due to check more details.

PDP Malfunction Phenomenon



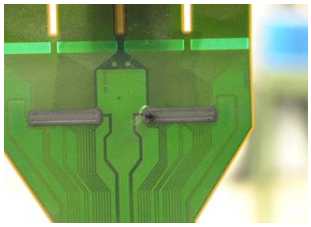
No Picture

Alarm Protection

- **Panel Alarm** → **FPC Opened**
  - Panel alarm line go through the edge of the FPC.
  - CHECK POINT
    FPC cutting at scan side and TCP side.
  - 
    REWORK
    We can not rework this.
- **Panel Grid Opened**
  - Panel alarm line go through the edge of panel.
    This case is caused by sulfur issue.
  - CHECK POINT
    Panel Grid condition.
  - 
    REWORK
    We can not rework this.
- **Vs Protection** → **High Voltage Circuit Broken**
  - Next parts will be broken, Scan Board, Common Board, High Voltage Board, Scan Relay Board.
  - CHECK POINT
    Fuse on boards, Power HIC, Between NEGA and POSI on scan relay board
  - REWORK
    Change the Scan, Common board and Scan relay board.

No Picture

Alarm Protection

- **Vd Protection**
  - **TCP Broken**
    - In case of shortage between Vd line and GND in TCP, Vd protection will be worked.
    - CHECK POINT
      Shortage between Vd line and GND, TCP surface
    - 
    - REWORK
      We can not rework this.
  - **Data Relay Board Broken**
    - In case of shortage between Vd line and GND in data relay board, Vd protection will be worked.
    - CHECK POINT
      Shortage between Vd line and GND on data relay board.
    - REWORK
      Change the data relay board.
- **5V Protection**
  - **Digital Board Broken**
    - In case of no supply from supply board, 5V protection will be worked.
    - CHECK POINT
      Fuse on digital board
    - REWORK
      Change the digital board.

No Picture

No Priming No Signal

High Voltage Circuit Broken

Next parts will be broken, Vp or Vbw line on Scan Board, Vsw line on Common Board, (High Voltage Board).

CHECK POINT
Fuse on board, Vp, Vbw and Vsw line of Power HIC.

REWORK
Change the scan or common board (High voltage board).

Digital Board Broken

Digital is not working.

CHECK POINT
fuse on digital board, LVDS cable

REWORK
Change the digital board.

Vacuum Tube Cracking

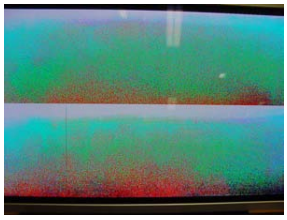
With big noise.

CHECK POINT
Vacuum tube

REWORK
We can not rework this.

No Picture

Abnormal screen — High Voltage Circuit Broken



Next parts will be broken, Vbw line on Scan Board, Vsw line on Common Board, (High Voltage Board).

CHECK POINT
fuse on board, Vbw or Vsw line on board.

REWORK
Change the scan or common board (High voltage board).

Vertical

Single Line

The output of TCP

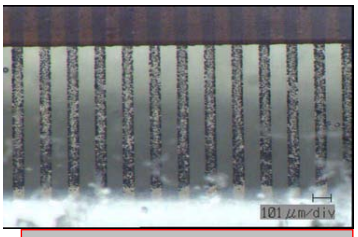
The output of TCP is fixed at low level or high level.
This line is very clear and constant.

CHECK POINT
One line is no-lighting or lighting at any pure color signal (red, green blue and black)

REWORK
We can not rework this.

Data Grid Open

Damaged data grid in panel
EX) Sulfur, scratch



CHECK POINT
The surface condition of panel grid.

REWORK
We can not rework this.

Vertical

Two Lines

The output of TCP

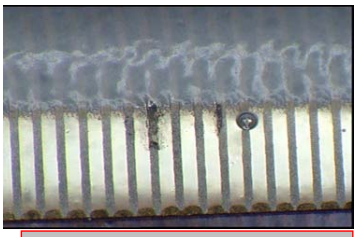
The closed outputs of TCP are Shortage.

CHECK POINT
Two lines are lighting at two colors.

REWORK
We can not rework this.

Data Grid Shortage

The grids of panel are shortage due to foreign material.

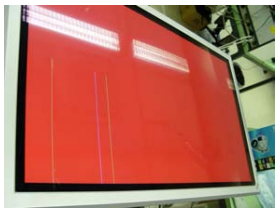


CHECK POINT
The surface condition of panel grid.

REWORK
We can not rework this.

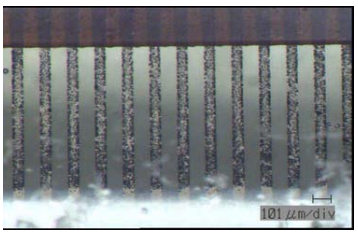
Vertical

Many Lines — Data Grid Open



Damaged data grid in panel
EX) Sulfur, scratch

CHECK POINT
The surface condition of panel grid.



REWORK
We can not rework this.

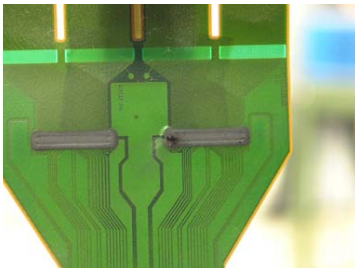
Vertical

Black Block

TCP Broken

TCP is not working.

CHECK POINT
The surface of TCP is damaged.

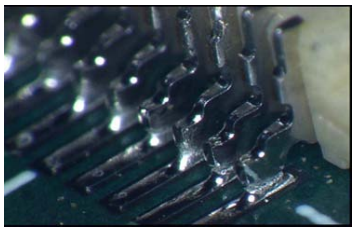


REWORK
We can not rework this.

Data Relay Board

The buffer IC is not working on signal lines.
The connector on data relay board is opened by the cracking of solder.

CHECK POINT
Input signal condition.



REWORK
Change the data relay board.

Vertical

Zebra Block — Data Relay Board

The lead of the buffer IC or the connector on data relay board are shortage by foreign material.

CHECK POINT
Input signal condition.

REWORK
Change the data relay board.

Many Blocks — Data Relay Board

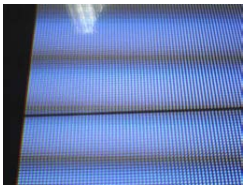
The lead of the buffer IC or the connector on data relay board are shortage by foreign material.

CHECK POINT
Input signal condition.

REWORK
Change the data relay board.

Horizontal

Single Line



The output of Scan IC

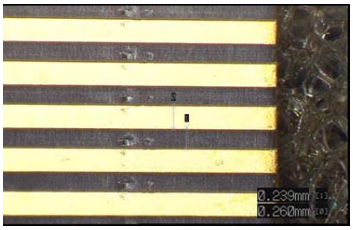
The output of scan IC is fixed at low level or high level.
This line is very clear and constant.

CHECK POINT
One line is no-lighting or lighting at white signal.

REWORK
Change the scan relay board.

Scan Relay Board

Mis-contact between FPC and the connector of scan relay board.



CHECK POINT
The output of scan IC.
Reconnection.

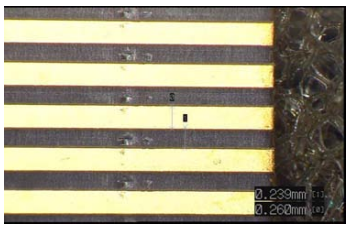
REWORK
Reconnect the FPC.

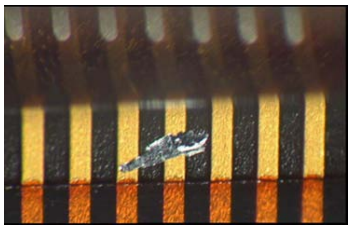
Horizontal

Two Lines — Scan Relay Board

The output of scan IC are shortage.
This line is not clear and not constant.

CHECK POINT
FPC insert shifting.
Foreign material in connector.
The lead of scan IC.





REWORK
Clean in the connector.
Reconnect the FPC.
Change the scan relay board.

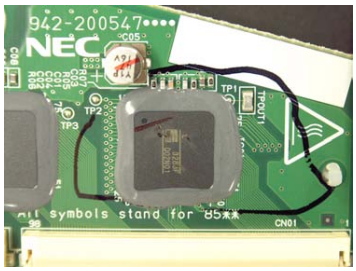
Horizontal

Block

Scan IC broken

Scan IC is not working.

CHECK POINT
The surface of scan IC.



REWORK
Change the scan relay board.

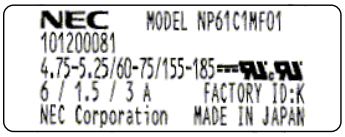
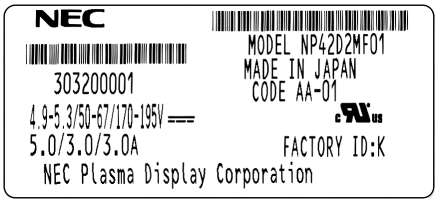
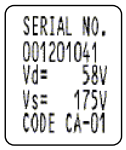
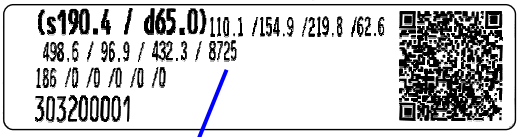
Scan Board

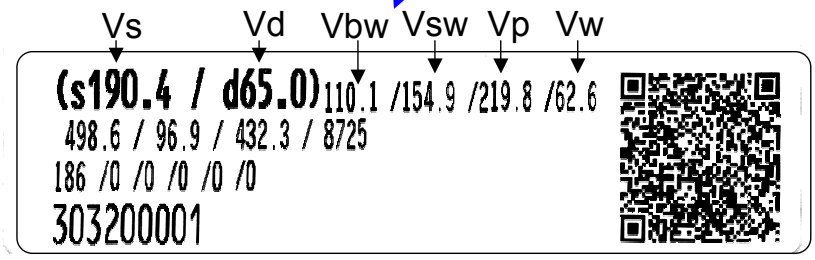
The output of scan board is not working.

CHECK POINT
The output of Scan Board.

REWORK
Change the scan board.

Voltage Information

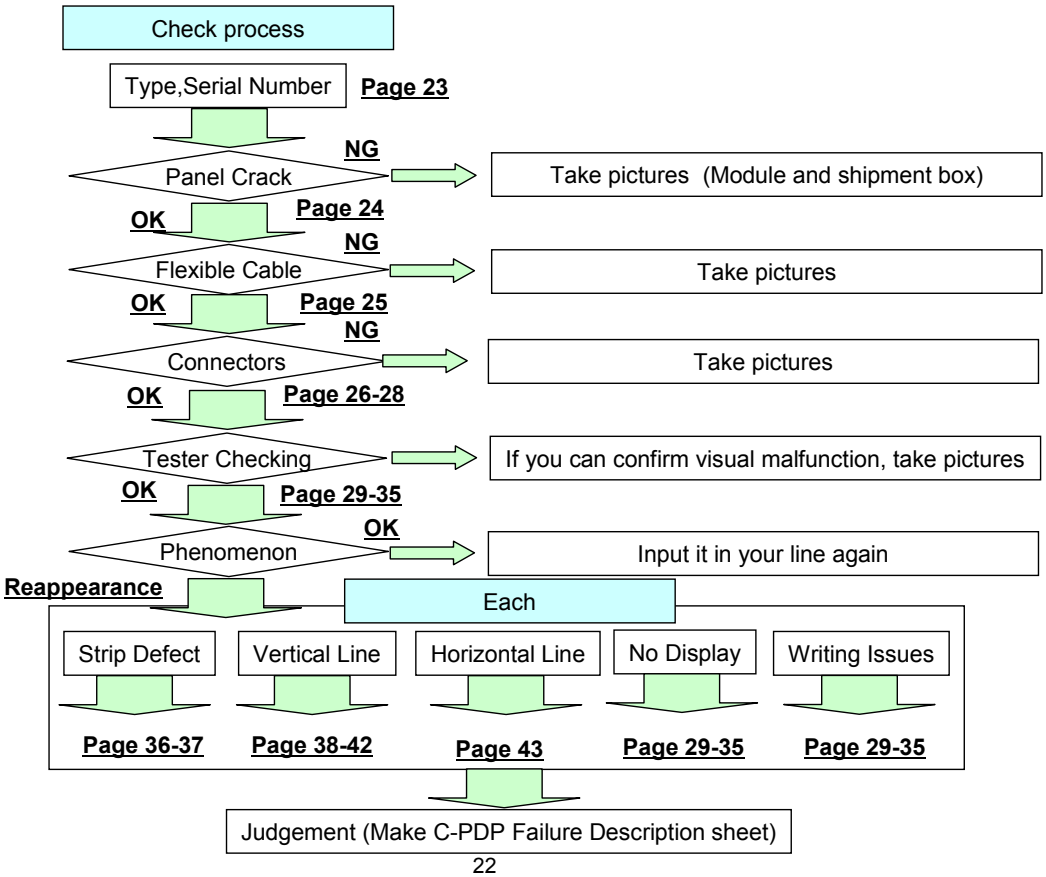
		By June 2003	Since July 2003
Label A	Sample		
	Dimension	40 x 17mm	55 x 25mm
Label B	Sample		
	Dimension	20 x 17mm	55 x 15mm



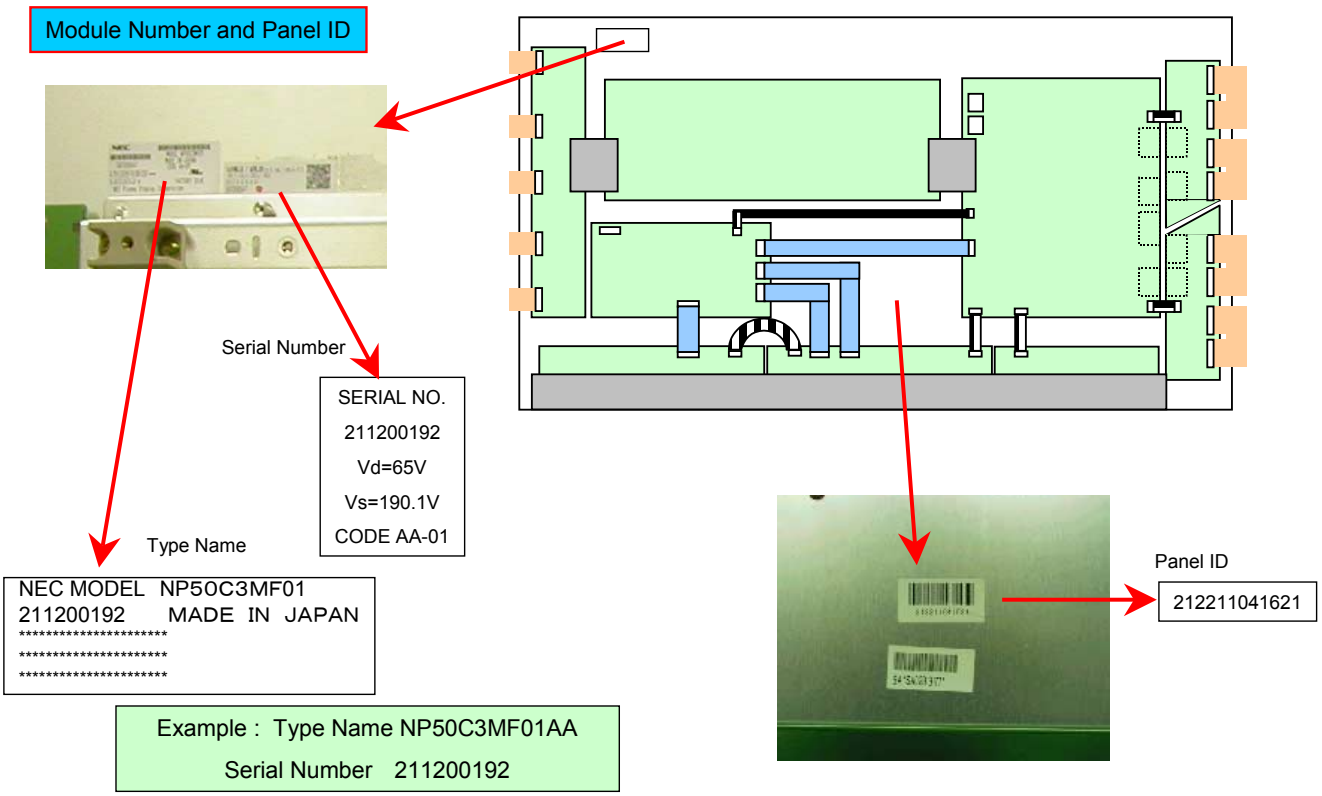
PDP (NP50C3MF01) Confirmation Manual

Ver.1

Flow Chart


Check process
Type,Serial Number
Page 23
NG
Panel Crack
Take pictures (Module and shipment box)
OK
Page 24
NG
Flexible Cable
Take pictures
OK
Page 25
NG
Connectors
Take pictures
OK
Page 26-28
Tester Checking
If you can confirm visual malfunction, take pictures
OK
Page 29-35
OK
Phenomenon
Input it in your line again
Reappearance
Each
Strip Defect
Vertical Line
Horizontal Line
No Display
Writing Issues
Page 36-37
Page 38-42
Page 43
Page 29-35
Page 29-35
Judgement (Make C-PDP Failure Description sheet)

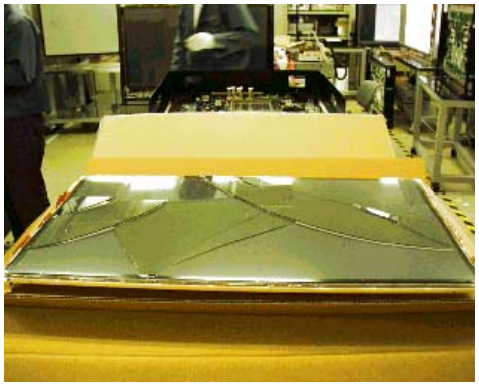
Serial Number



Panel Crack

Panel Crack

Check the surface of glass whether crack or not.



This issue may be caused by transportation or treatment after shipment.

We would like you to take some pictures, the broken module, the outside box, and inform the shipment date.

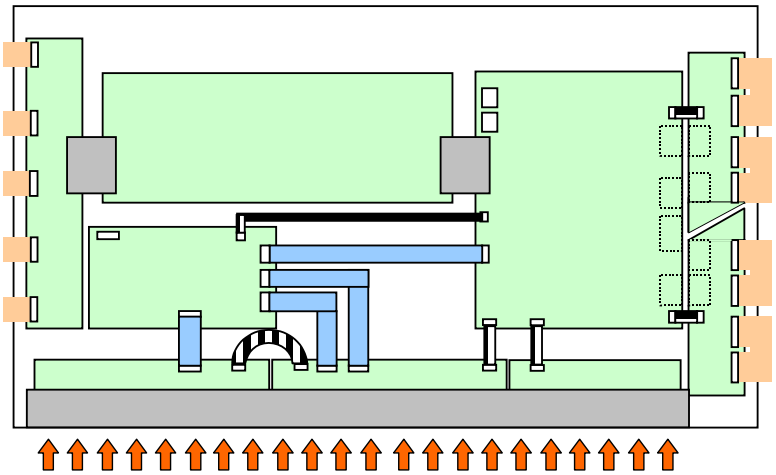
If you do not the pictures, we can dispose the broken modules on our responsibility.

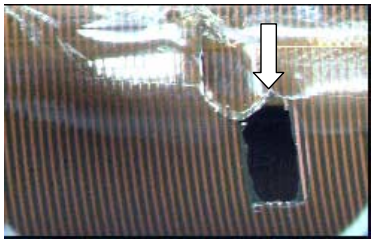
Flexible Cable

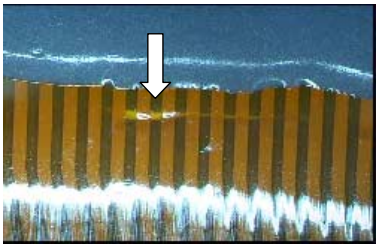
Flexible Cable

Check the Flexible Cables whether scratched, broken, or not.

Cutting cable or broken







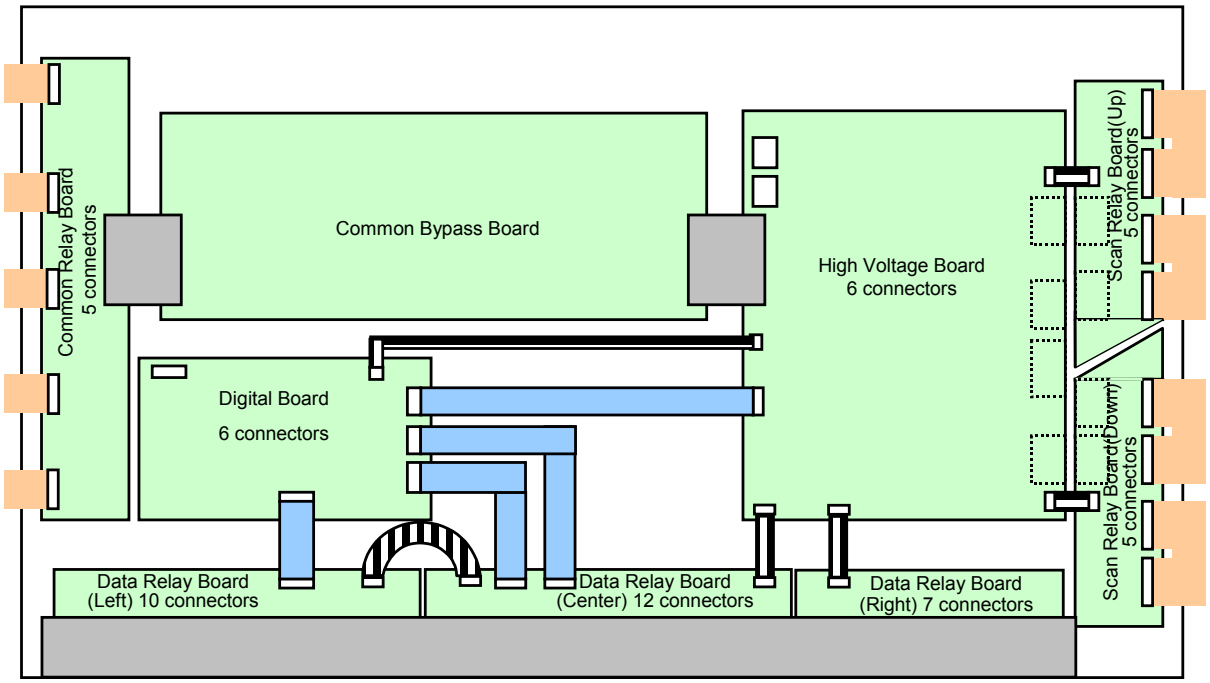
In this case, it caused by handling them at customers line.

We would like you to be careful to handle the modules.

Connectors

Connectors Condition

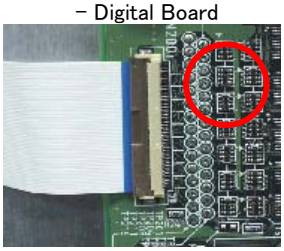
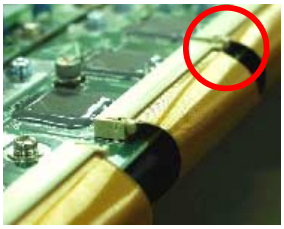
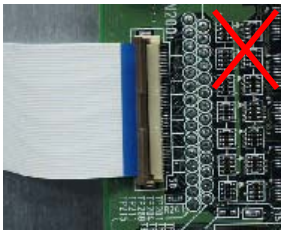
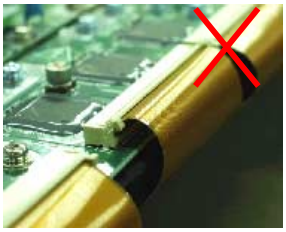
Check the Cables or Connectors whether connected and locked, or not.



We would like you to be careful to handle the modules at assembling.

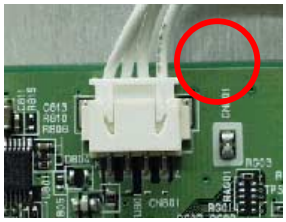
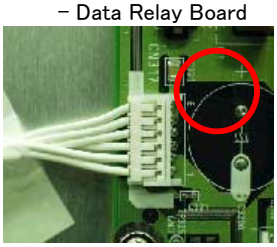
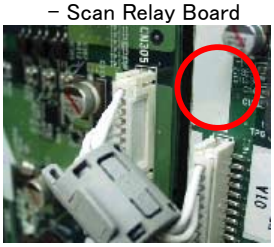
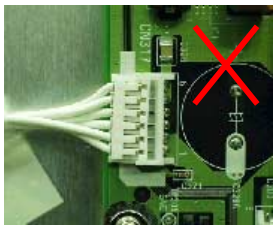
Connector Checking 2

Each Connector

	High Voltage Board – Digital Board	Scan Relay Board – Flexible Cable	Common Relay Board – Flexible Cable
Locked			
Unlocked			

Connector Checking 3

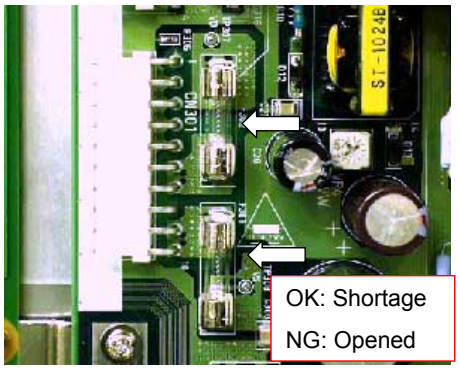
Each Connector

	Digital Board – High Voltage Board	High Voltage Board – Data Relay Board	High Voltage Board – Scan Relay Board
Locked			
Unlocked			

Tester Checking 1

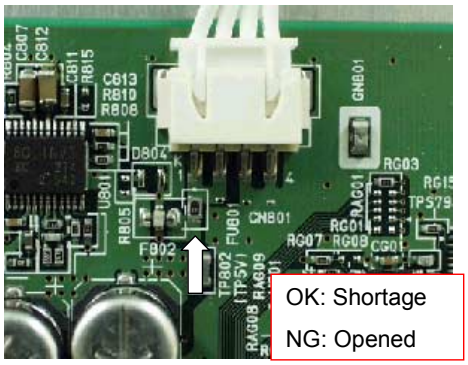
Fuse

Glass Fuse on High Voltage Board
(F301 、F302)



OK: Shortage
NG: Opened

Chip Fuse on Digital Board
(FU801)

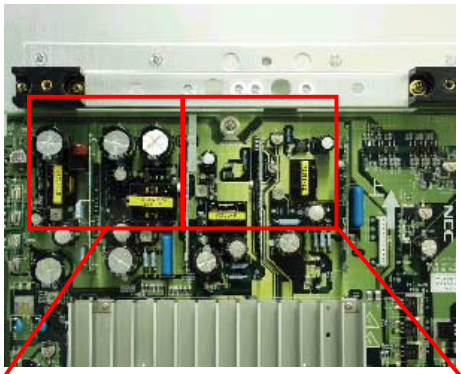


OK: Shortage
NG: Opened

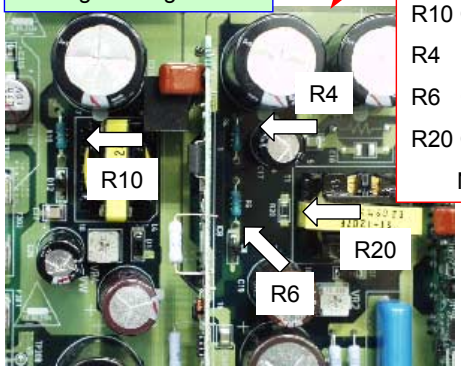
Tester Checking 2

Fuse

Resistance and Chip Fuse on High Voltage Board

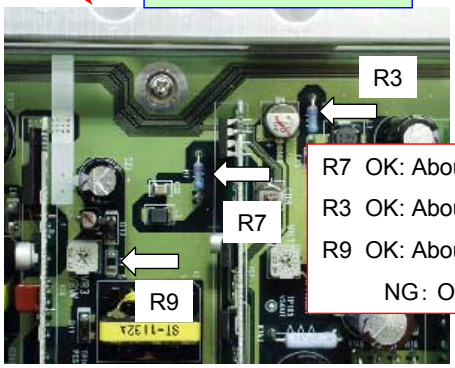


Fuse Resistance
(R10), (R4), (R6)
Chip Fuse Resistance
(R20)
On High Voltage Board



R10 OK: About 2.2 Ω
R4 OK: About2.2 Ω
R6 OK: About2.2 Ω
R20 OK: About 10 Ω
NG: Opened

Fuse Resistance
(R7), (R3)
Chip Resistance
(R9)
On High Voltage Board

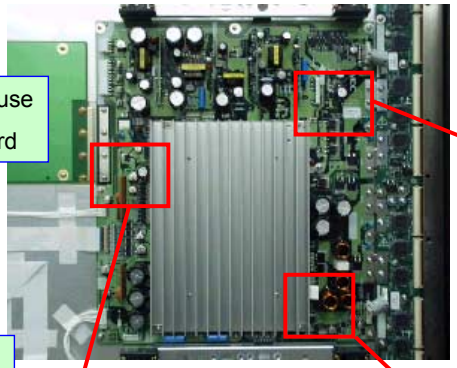


R7 OK: About2.2 Ω
R3 OK: About2.2 Ω
R9 OK: About 10 Ω
NG: Opened

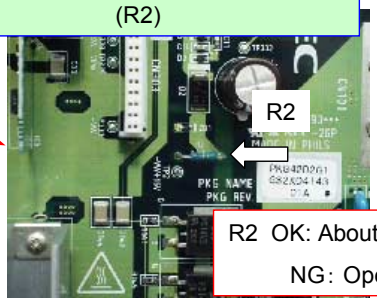
Tester Checking 3

Fuse

Resistance and Chip Fuse on High Voltage Board

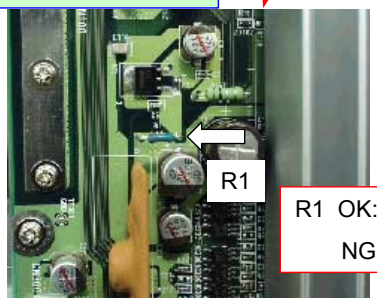


Fuse Resistance on High Voltage Board (R2)



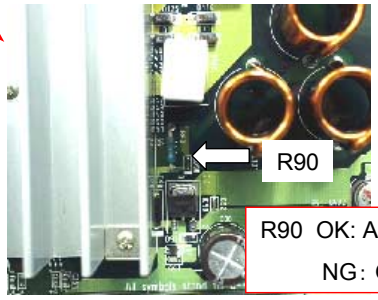
R2 OK: About2.2 Ω
NG: Opened

Fuse Resistance on High Voltage Board (R1)



R1 OK: About2.2 Ω
NG: Opened

Fuse Resistance on High Voltage Board (R90)



R90 OK: About2.2 Ω
NG: Opened

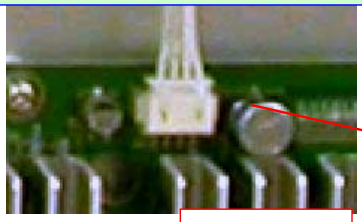
Tester Checking 4

Data IC

Data Relay Board (Right)

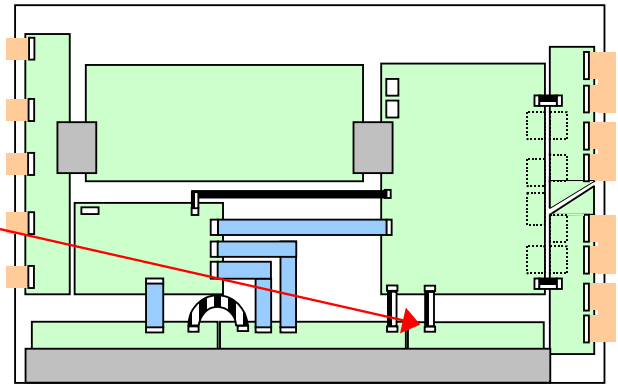
Check between #1 pin and #2 pin (GND)

（Vd Voltage Line of Data IC）



OK: Opened

NG: Shortage



Check the resistance between #1 pin and #2 pin (GND) with tester.

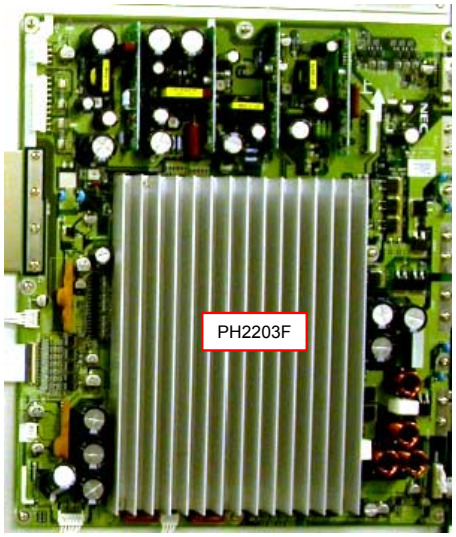
In case of shortage, it is caused by malfunction of data IC.

Check the surface of data IC after removing the heat sink and Take some pictures.

Tester Checking 5

Parts Location

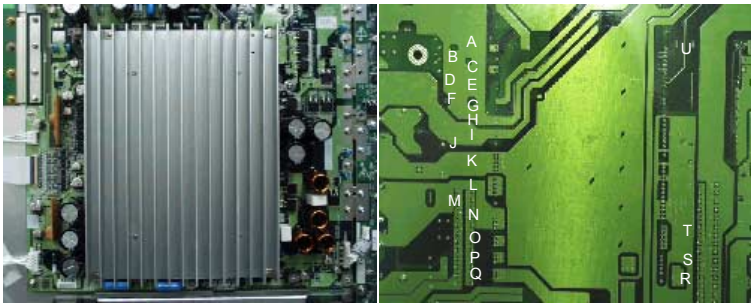
High Voltage Board



Tester Checking 6

Power HIC

PH2203F on High Voltage Board



Turn this board over, and Check each points

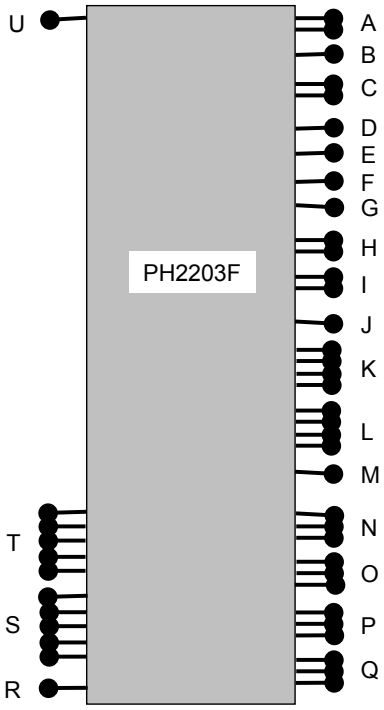
Judgment

OK: more than KΩ

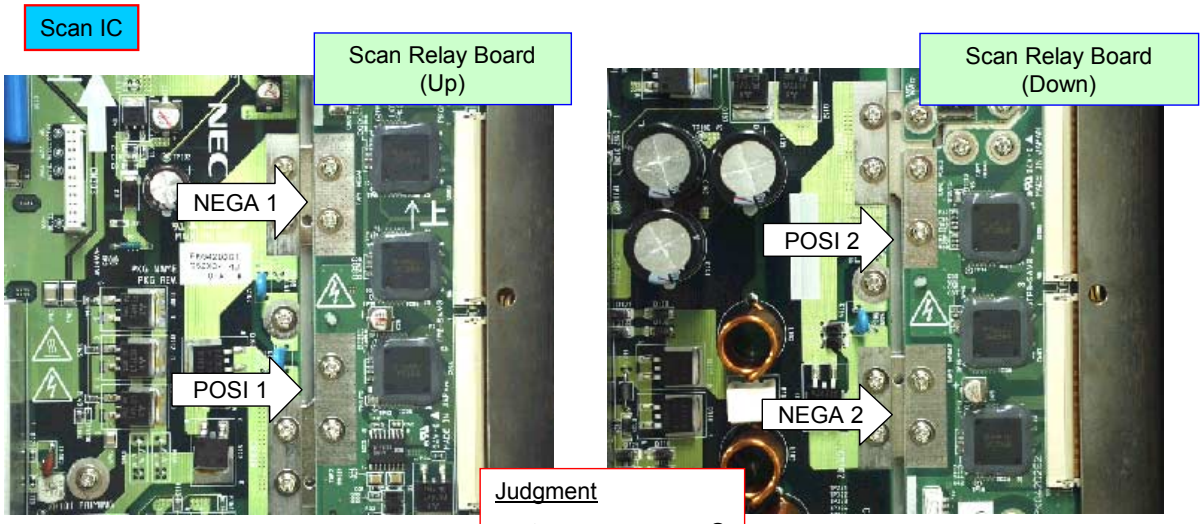
NG: Shortage

Checking point

Between A and B	Between C and U	Between J and O
Between A and U	Between F and U	Between L and M
Between B and C	Between G and H	Between P and T
Between B and E	Between H and J	Between Q and T
Between B and M	Between I and J	
Between B and N	Between J and K	



Tester Checking 7



Judgment

OK: More than KΩ

NG: Shortage

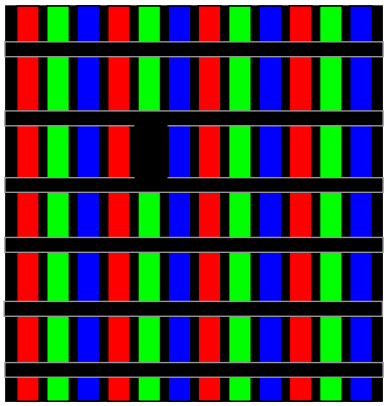
Checking Point

Between NEGA and POSI

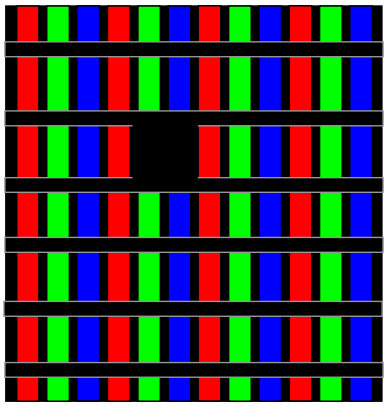
Strip Defect 1

Strip Defect

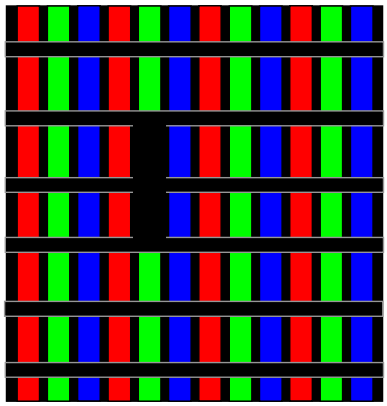
Compare with specification



1 strip



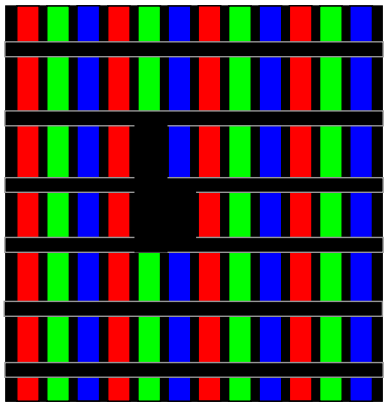
2 strip



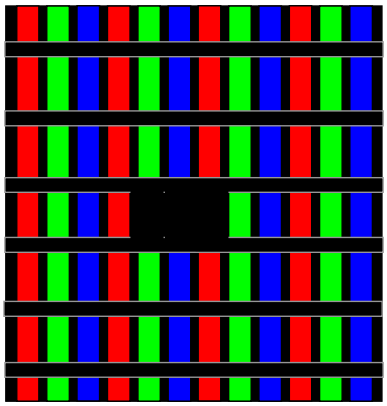
2 strip

Strip Defect 2

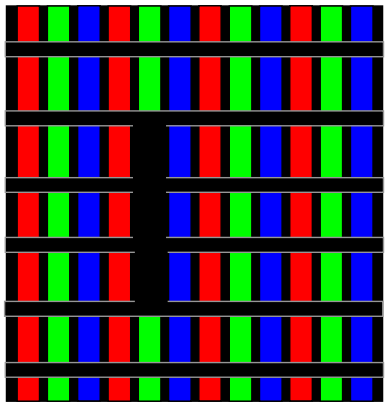
Strip Defect



3 strip



3 strip

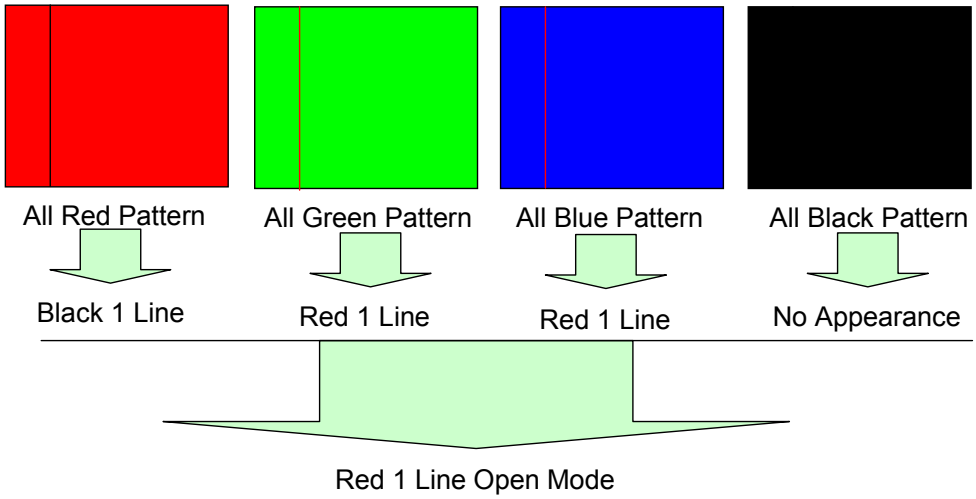


3 strip

Vertical Line 1

Vertical Line Single line

Open Mode



[Check Point] a) The broken data flexible cable.

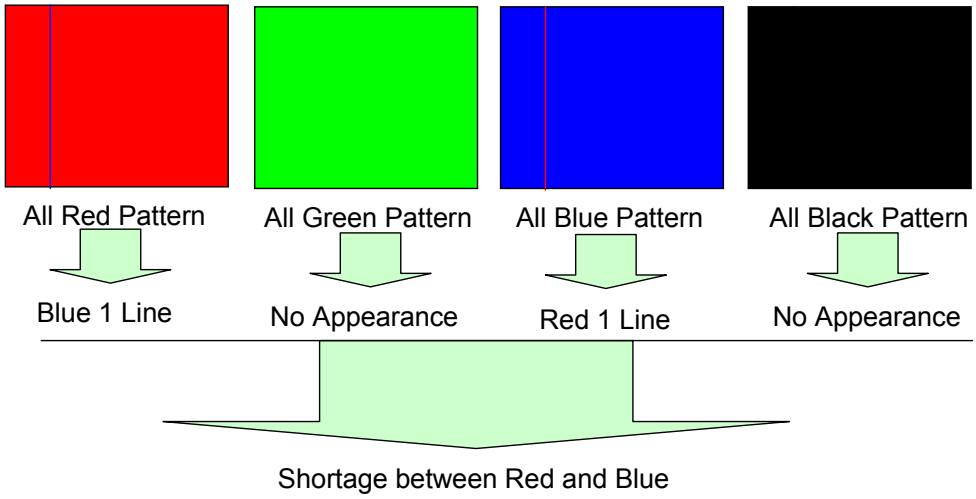
If OK,

Data IC Broken.

Vertical Line 2

Vertical Line Two lines

Shortage Mode



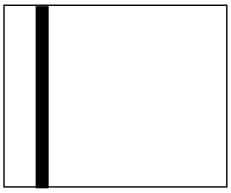
[Check Point]

a) This phenomenon is caused by panel issues.

Vertical Line 3

Vertical Line

block



1/2 data IC Block(Width 30mm)

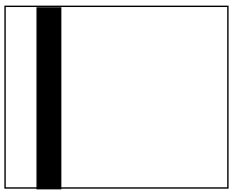
[Check Point]

a) The broken surface IC on data IC.

b) The broken data flexible cable.

Vertical Line 4

Vertical Line block



1 data IC Block

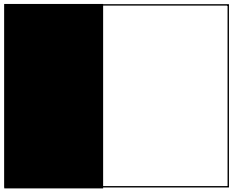
[Check Point]

a) Lacking connector between Data Relay board and Data IC.

b) The broken data flexible cable.

Vertical Line 5

Vertical Line block



Many data IC Block

[Check Point]

a) Lacking connector between Data Relay board and Scan or Common board.

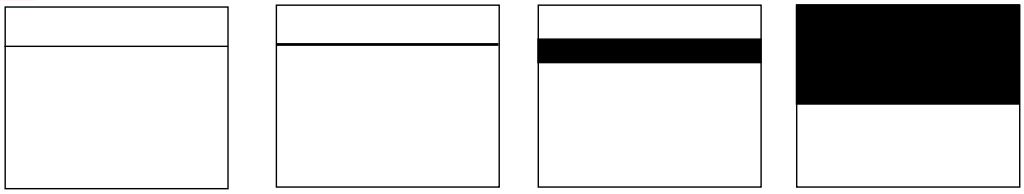
b) The broken data flexible cable.

C) Shortage between leads in connector.

Foreign Material etc.

Horizontal Line

Horizontal Line single line, two lines or block



Single Two lines Block Block

a) The broken surface IC on scan IC driver.

Check the resistance between NEGA and POSI on scan IC board. (Normal: KΩ Level)

b) The broken scan flexible cable.

c) Lacking connector between scan IC and scan board.

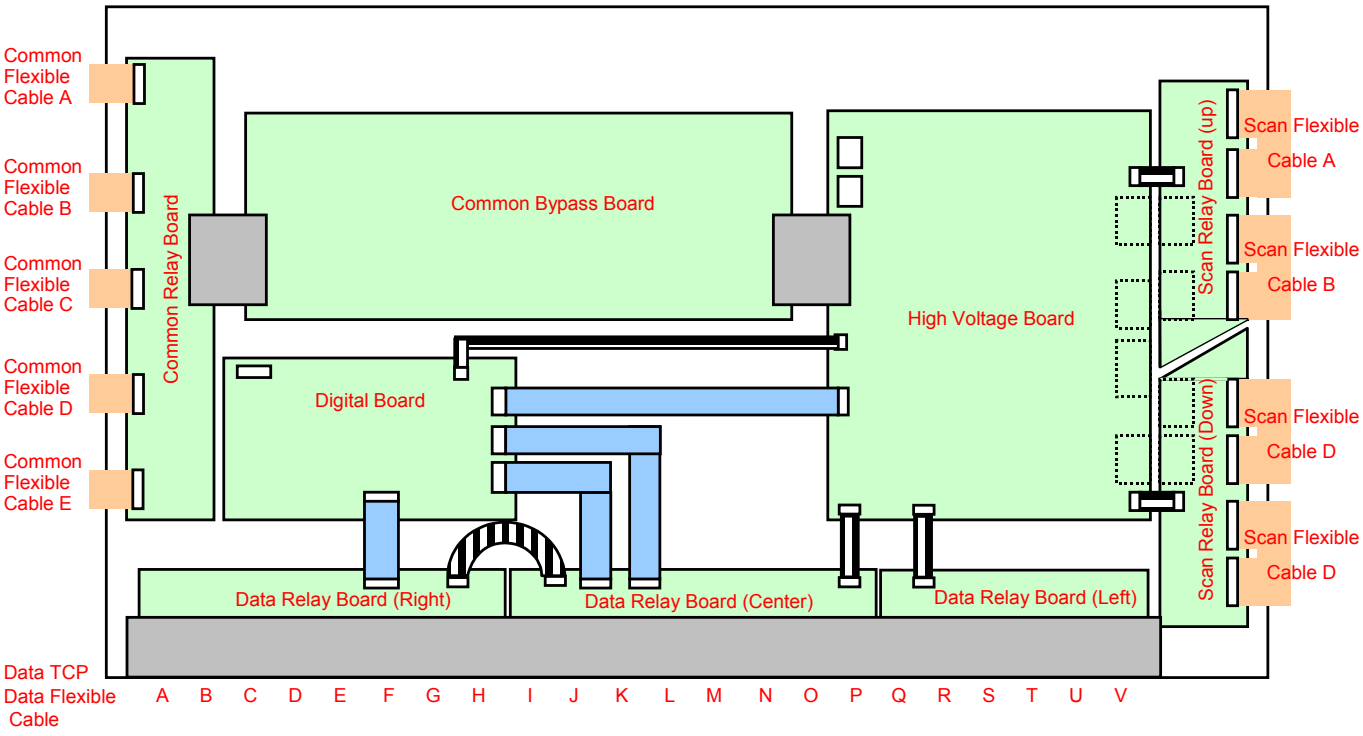
d) Shortage between each pins on scan IC by foreign metal material.

e) Contact malfunction between connector and flexible cable on scan relay board.

(CN01 – CN04, CN06 – CN09)

Check the contact by pushing.

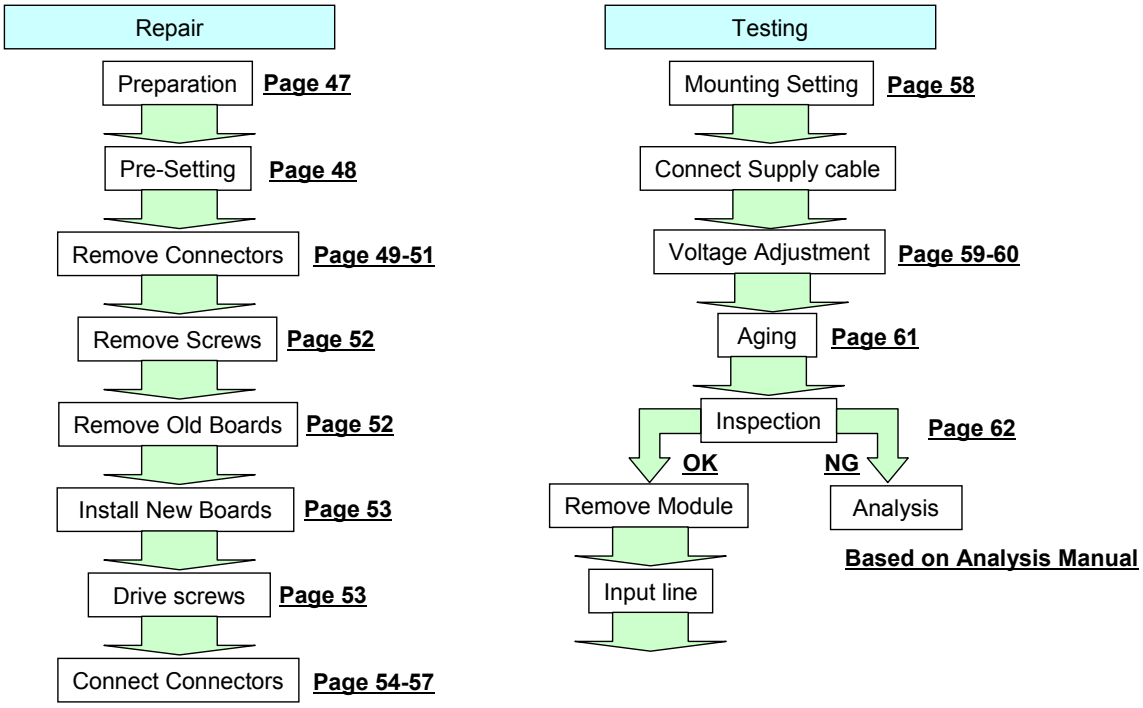
50C3 Board Location


Common Flexible Cable A
Common Flexible Cable B
Common Flexible Cable C
Common Flexible Cable D
Common Flexible Cable E
Common Relay Board
Common Bypass Board
Digital Board
High Voltage Board
Scan Relay Board (up)
Scan Relay Board (Down)
Scan Flexible Cable A
Scan Flexible Cable B
Scan Flexible Cable D
Scan Flexible Cable D
Data Relay Board (Right)
Data Relay Board (Center)
Data Relay Board (Left)
Data TCP
Data Flexible Cable
A B C D E F G H I J K L M N O P Q R S T U V

PDP (NP50C3MF01) Repair Manual

Ver.1

Repair Flow Chart



Preparation

Tools

a) Driver	---------- Plus Type
b) Wrist Discharge	---------- Prevent Electrostatic
c) Signal Generator (PC)	
d) Supply Package	
e) Mounting	---------- To Stand Module
f) Tester	
g) Cushion	---------- To put the Module on

ATTENTION

Replacing the boards, always use the wrist band to prevent electrostatic.

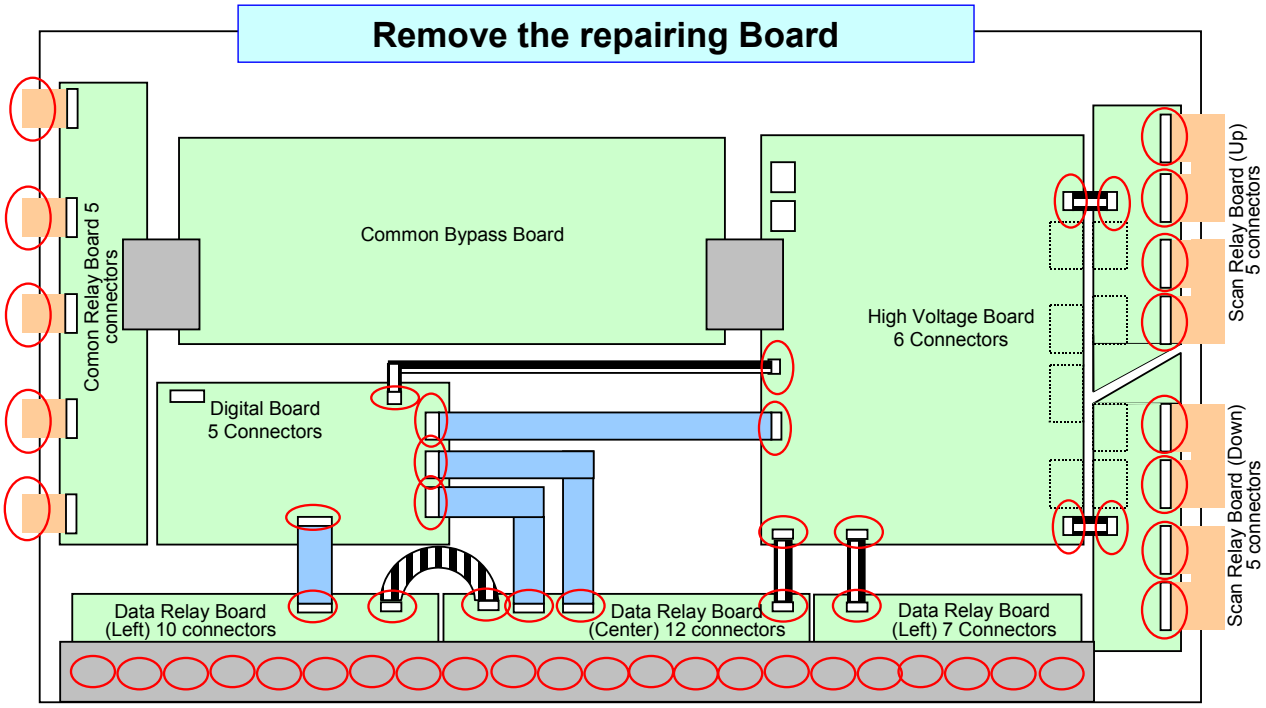
Pre-setting

Put the cushion on a table and repaired module on cushion

ATTENTION

Put panel like catching all surface on cushion.

Repair 1 Remove connectors and cables (1)

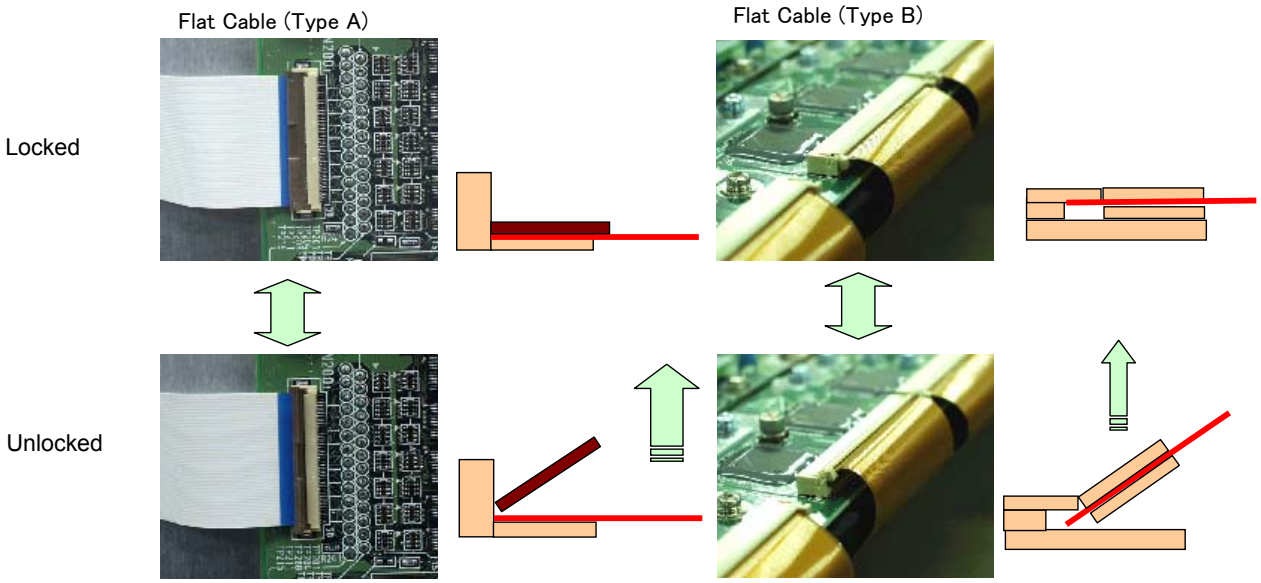


Attention

Be careful to deal with the connectors and cables.
Remove the heat sink on the data relay board before removing the data relay board.

Repair 1 Remove connectors and cable (2)

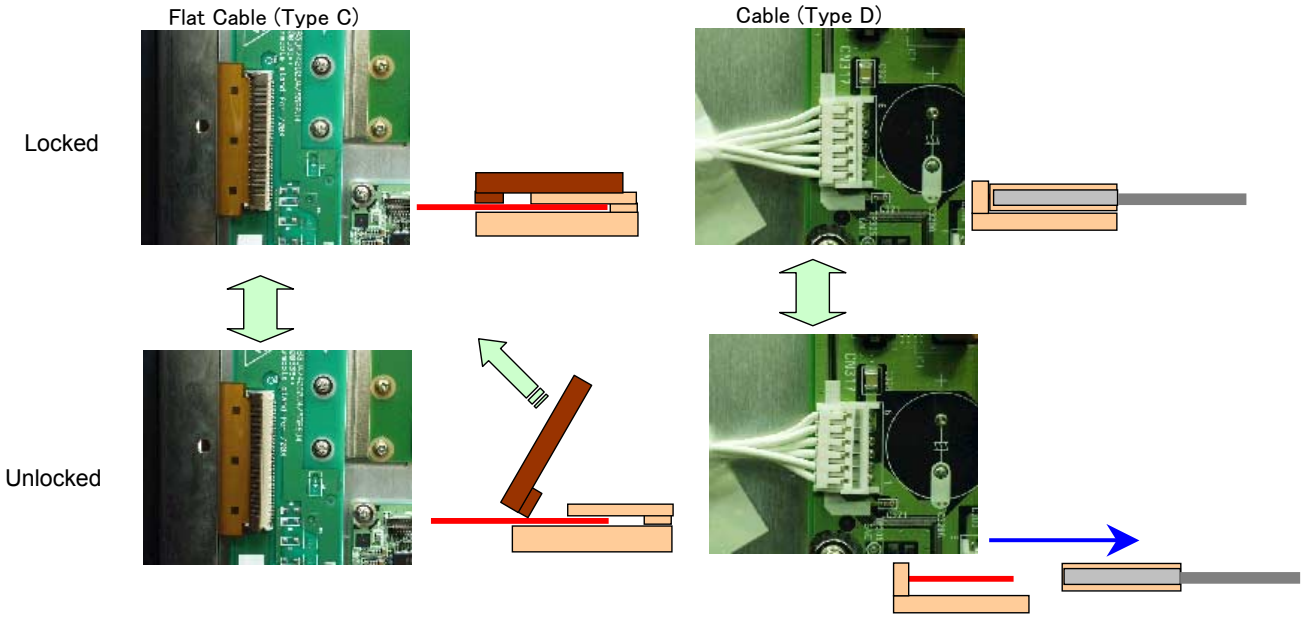
How to remove the connectors



Be careful to remove the connectors because the structure of each connector is different.
Or, it is possible to broken the connectors.

Repair 1 Remove connectors and cable (3)

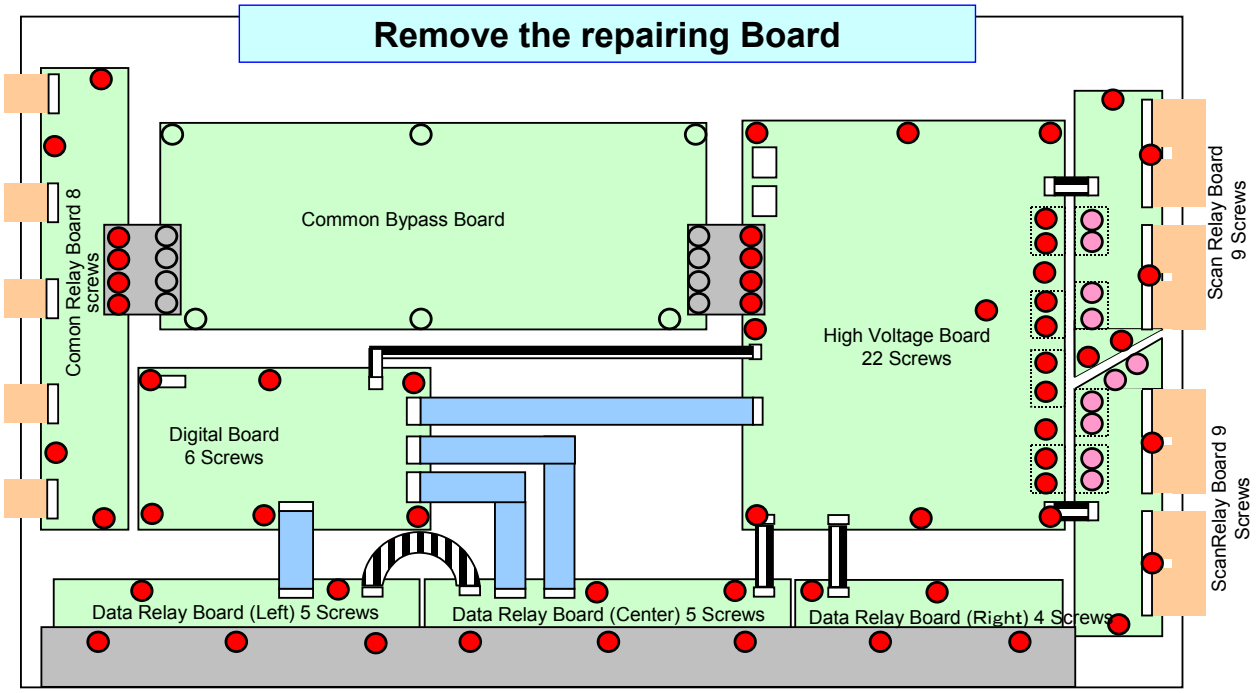
How to remove the connectors



Be careful to remove the connectors because the structure of each connector is different.

Or, it is possible to broken the connectors.

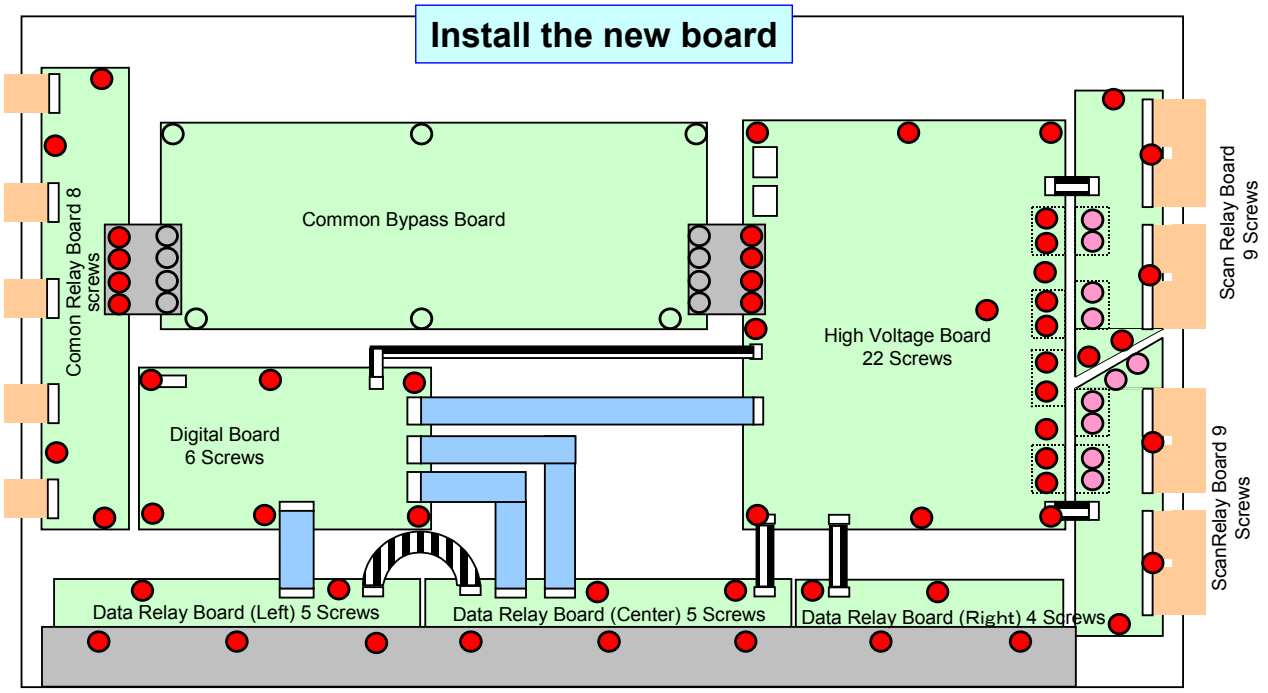
Repair 2 Remove the Boards



Attention

Do not drop the screwdriver or screws on the board.
Be careful to not make the screw dust ----- Shortage factor.

Repair 3 Install the new boards



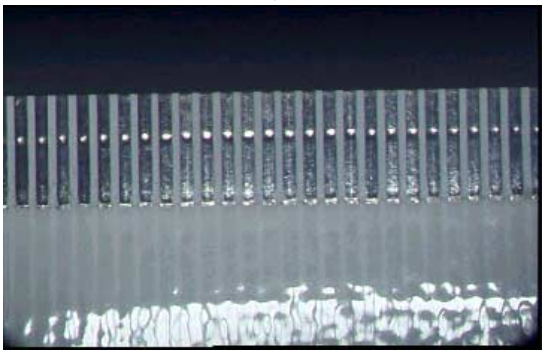
Attention

Install the same number board as module.
Do not add any stress board.
Be careful of the length of a screw. ● **marking : length of 8mm,** ○ **marking : length of 5mm**

Repair 4 Connecting (1)

Check the cables and in sockets

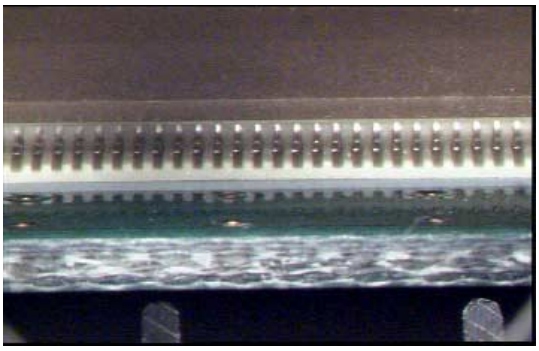
Flat Cable (Type A)



ATTENTION

Check the surface of grids whether it is tearing or not.

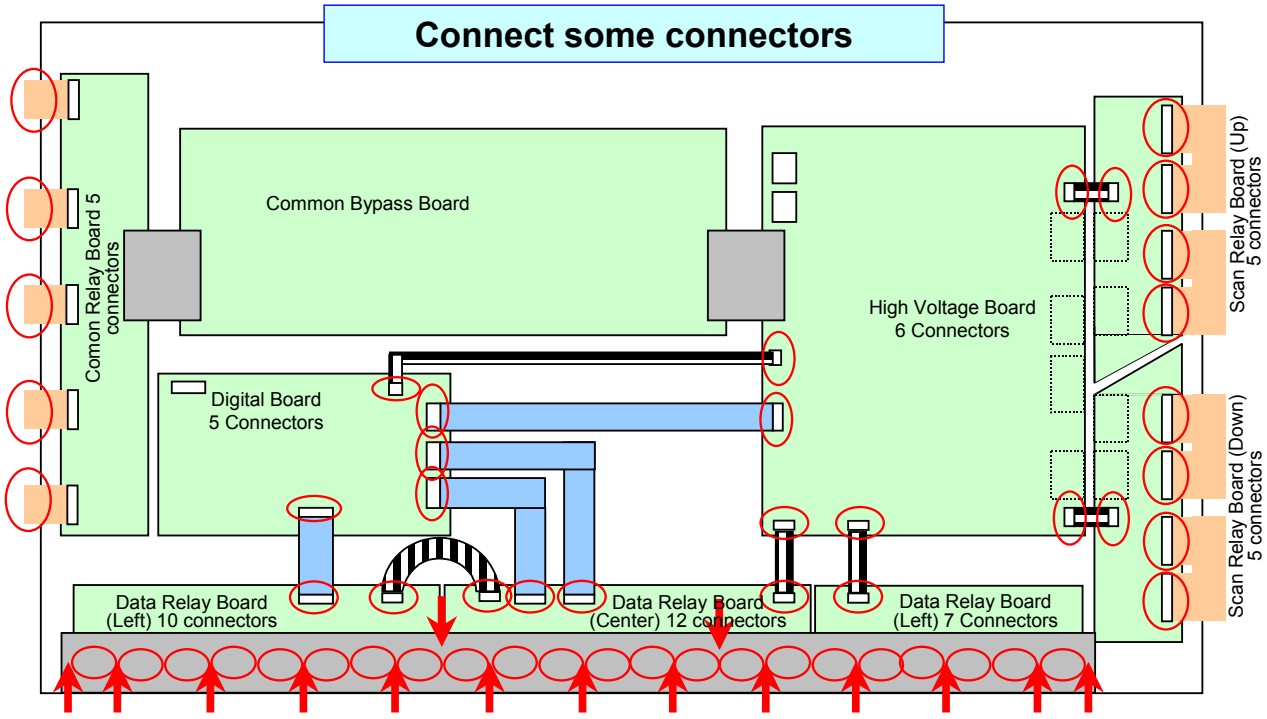
Socket (Type A)



ATTENTION

Check whether there are some foreign materials or not in socket.

Repair 4 Connecting (2)

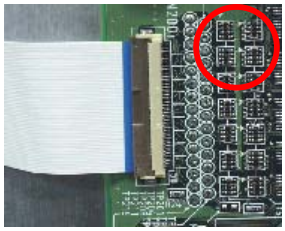
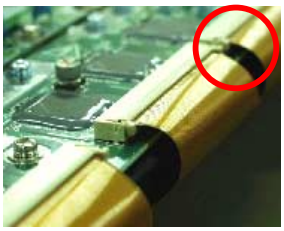
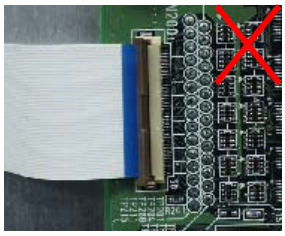
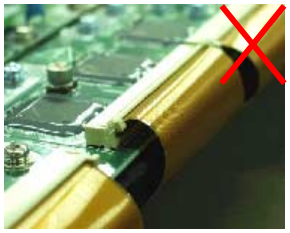


ATTENTION

Please check that connector connection of a red line part is made normally.
When you exchange the signal relay PKG, finally please attach a heat sink. (15 screws: ↑).

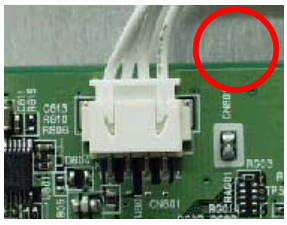
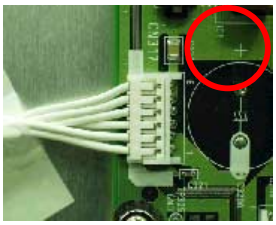
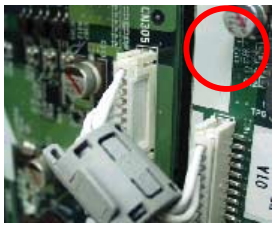
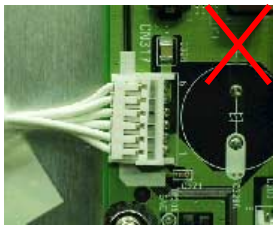
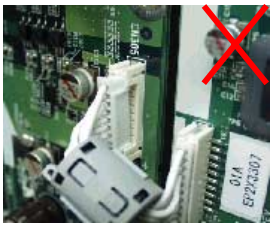
Repair 4 Connecting (3)

Connection Condition

	High Voltage Board (Photograph) — Digital Board	Scan Relay Board (Photograph) — FFC Cable	Common Relay Board (Photograph) — FFC Cable
Locked			
Unlocked			

Repair 4 Connecting (4)

Connection Condition

	Digital Board (Photograph) — High Voltage Board	High Voltage Board (Photograph) — Data Relay Board	High Voltage Board (Photograph) — Scan Relay Board
Locked			
Unlocked			

Check working

Mounting Setting

ATTENTION

Do not stand the module directly on table. ----- Broken the flexible cable

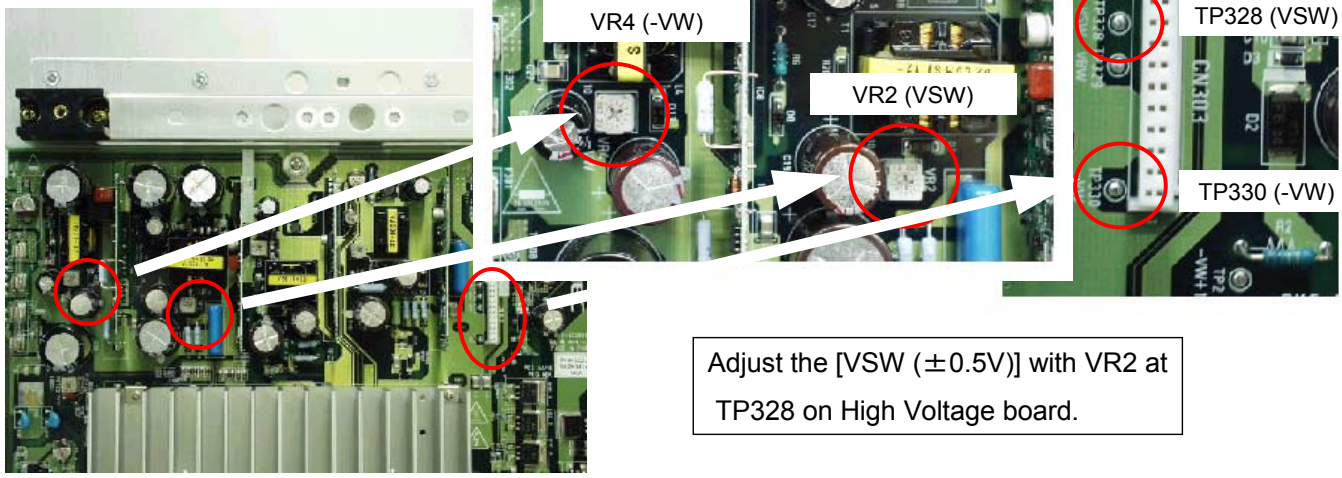
To fix the connectors from supply board. ----- Broken scan & common board

Adjust supply board to the suitable voltage (Vs) of panel. ----- Writing issue

Voltage Adjustment (1)

VSW & -VW Adjustment

Adjust the [-VW (±0.5V)] with VR4 at TP330 on High Voltage board.

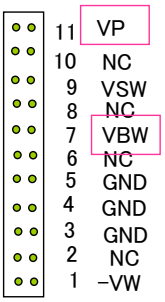


Adjust the [VSW (±0.5V)] with VR2 at TP328 on High Voltage board.

Voltage Adjustment (2)

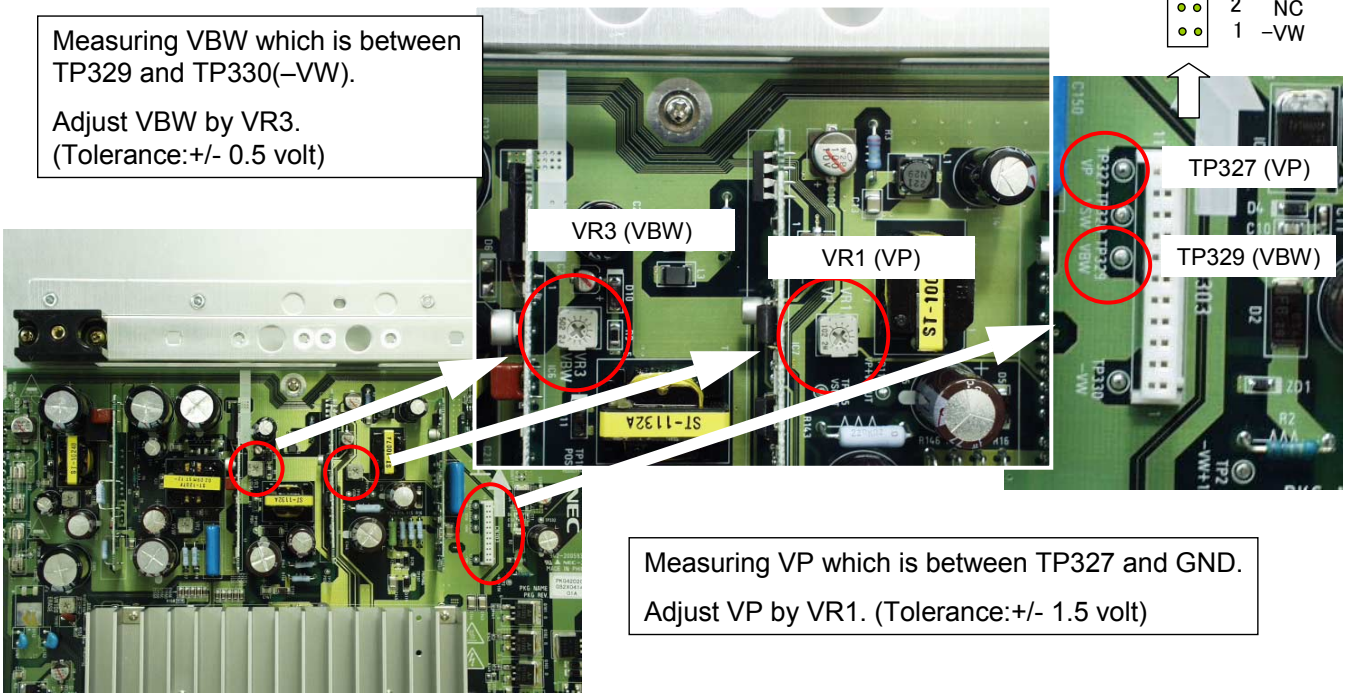
VBW 、VP Adjustment

In case of no measuring land on the board, please refer pin assignments.



Measuring VBW which is between TP329 and TP330(–VW).

Adjust VBW by VR3.
(Tolerance:+/- 0.5 volt)



Measuring VP which is between TP327 and GND.

Adjust VP by VR1. (Tolerance:+/- 1.5 volt)

Check working

Aging

White Pattern

ACTION

Aging on all white pattern for at least 30 min.

ATTENTION

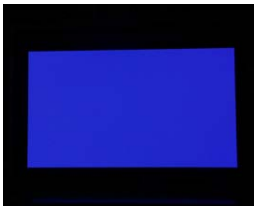
Do not use fixed signals to aging. For example windows pattern or window pattern.

Check working

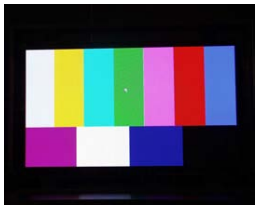
Inspection

Red

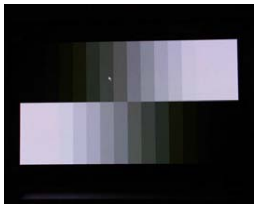
Green



Blue



Color Bar



Gray Scale

ACTION

Inspect the screen condition under all red, all green, all blue, color bar and gray scale.

List the replaced result as attached sheet.

ATTENTION

In case of some black strips or light strip, to aging more for one hours with all white pattern.

Stocking Condition

ATTENTION

To stock the modules in the room keeping on standard temperature and humidity.

To keep the modules sideways as following picture.

4. THE PARTS INFORMATION

PDP Module Repair Parts List

Model name	NPD PDP Module	Part Number	Spare Parts Name	Supplier's Parts Number	VERSION	Note
KE-50MR1(AEP)	NP50C3MF01 AB	9-885-060-55	Panel Module NP50C3MF01AB	NP50C3MF01AB	-	**Panel Module for service**
S/N:2200001~		9-885-049-92	PKG50C3G1 BOARD HT4-9S899423	PKG50C3G1	03B	50C3 High Voltage PKG
		9-885-053-73	PKG50C3E1 BOARD HT4-9S899434	PKG50C3E1	02A	50C3 Scan Relay PKG(Top)
		9-885-049-93	PKG50C3E1 BOARD HT4-9S899467	PKG50C3E1	02B	
		9-885-053-74	PKG50C3E2 BOARD HT4-9S899435	PKG50C3E2	02A	50C3 Scan Relay PKG(BTM)
		9-885-049-94	PKG50C3E2 BOARD HT4-9S899468	PKG50C3E2	02B	
		9-885-049-95	PKG50C3J1 BOARD HT4-9S899469	PKG50C3J1	01A	50C3 Data Relay PKG(R)
		9-885-049-96	PKG50C3J2 BOARD HT4-9S899470	PKG50C3J2	01A	50C3 Data Relay PKG(Center)
		9-885-049-97	PKG50C3J3 BOARD HT4-9S899471	PKG50C3J3	01A	50C3 Data Relay PKG(R)
		9-885-049-98	PKG50C3E5 BOARD HT4-9S899593	PKG50C3E5	01A	50C3 Common Relay PKG
		9-885-053-77	PKG50C3E4 BOARD HT4-9S899491	PKG50C3E4	01A	50C3 Common Bypass PKG
		9-885-062-43	PKG50C3C1 BOARD HT4-9S899496	PKG50C3C1	02B-03	50C3 Digital PKG
		9-885-062-44	PKG50C3C1 BOARD HT4-9S899497	PKG50C3C1	01B-03	
		9-885-062-45	PKG50C3C1 BOARD HT4-9S899498	PKG50C3C1	02B-07	
		9-885-062-46	PKG50C3C1 BOARD HT4-9S899499	PKG50C3C1	01B-07	
		9-885-062-47	PKG50C3C1 BOARD HT4-9S899500	PKG50C3C1	02B-11	
		9-885-062-48	PKG50C3C1 BOARD HT4-9S899504	PKG50C3C1	01B-11	
KE-50MR1(AEP)	NP50C4MF01	9-885-063-28	Panel Module NP50C4MF01DA	NP50C4MF01DA	-	Panel Module for service
S/N:2500001~	AA, BA, CA, DA	9-885-058-87	PKG50C4G1 BOARD HT4-9S899562	PKG50C4G1	01D	50C4 High Voltage PKG
		9-885-058-88	PKG50C4C1 BOARD HT4-9S899563	PKG50C4C1	23C-16	50C4 Digital PKG
KE-50MR1 (K)		9-885-058-89	PKG50C4J1 BOARD HT4-9S899564	PKG50C4J1	01A	50C4 Data Relay PKG(LT)
KE-50MR1E (HK)		9-885-058-90	PKG50C4J2 BOARD HT4-9S899565	PKG50C4J2	01A	50C4 Data Relay PKG(Center Top)
KE-50MR1E (ME)		9-885-058-91	PKG50C4J3 BOARD HT4-9S899566	PKG50C4J3	01A	50C4 Data Relay PKG(RT)
		9-885-058-92	PKG50C4J4 BOARD HT4-9S899567	PKG50C4J4	01A	50C4 Data Relay PKG(LB)
		9-885-058-93	PKG50C4J5 BOARD HT4-9S899568	PKG50C4J5	01A	50C4 Data Relay PKG(Center Bottom)
		9-885-058-94	PKG50C4J6 BOARD HT4-9S899569	PKG50C4J6	01A	50C4 Data Relay PKG(RB)
		9-885-058-95	PKG50C4E1 BOARD HT4-9S899570	PKG50C4E1	01A	50C4 Scan Relay PKG(Top)
		9-885-058-96	PKG50C4E2 BOARD HT4-9S899572	PKG50C4E2	01A	50C4 Scan Relay PKG(BTM)
		9-885-058-97	PKG50C4E5 BOARD HT4-9S899573	PKG50C4E5	01A	50C4 Common Relay PKG
		9-885-058-98	PKG50C4E4 BOARD HT4-9S899574	PKG50C4E4	01A	50C4 Common Bypass PKG
KE-MR50M1 (CH)	NP50C4MF01	9-885-060-56	Panel Module NP50C4MF01DB	NP50C4MF01DB	-	Panel Module for service in China
	CB, DB	9-885-058-87	PKG50C4G1 BOARD HT4-9S899562	PKG50C4G1	01D	50C4 High Voltage PKG
		9-885-058-88	PKG50C4C1 BOARD HT4-9S899563	PKG50C4C1	23C-16	50C4 Digital PKG
		9-885-058-89	PKG50C4J1 BOARD HT4-9S899564	PKG50C4J1	01A	50C4 Data Relay PKG(LT)
		9-885-058-90	PKG50C4J2 BOARD HT4-9S899565	PKG50C4J2	01A	50C4 Data Relay PKG(Center Top)
		9-885-058-91	PKG50C4J3 BOARD HT4-9S899566	PKG50C4J3	01A	50C4 Data Relay PKG(RT)
		9-885-058-92	PKG50C4J4 BOARD HT4-9S899567	PKG50C4J4	01A	50C4 Data Relay PKG(LB)
		9-885-058-93	PKG50C4J5 BOARD HT4-9S899568	PKG50C4J5	01A	50C4 Data Relay PKG(Center Bottom)
		9-885-058-94	PKG50C4J6 BOARD HT4-9S899569	PKG50C4J6	01A	50C4 Data Relay PKG(RB)
		9-885-058-95	PKG50C4E1 BOARD HT4-9S899570	PKG50C4E1	01A	50C4 Scan Relay PKG(Top)
		9-885-058-96	PKG50C4E2 BOARD HT4-9S899572	PKG50C4E2	01A	50C4 Scan Relay PKG(BTM)
		9-885-058-97	PKG50C4E5 BOARD HT4-9S899573	PKG50C4E5	01A	50C4 Common Relay PKG
		9-885-058-98	PKG50C4E4 BOARD HT4-9S899574	PKG50C4E4	01A	50C4 Common Bypass PKG

NP50C3MF01AB

Upper compatible if no terms.

Name of Package (board)	Version	Replaceable Version	Conditions	Note
High Voltage Board PKG50C3G1	01A	**03B**		
	02A, 02B			
	03A, 03B			
Common Bypass Board PKG50C3E4	01A	**01A**		
Scan Relay Board (Up) PKG50C3E1	01A, 01B	**02A**		
	02A, 02B	**02B**		
Scan Relay Board (Down) PKG50C3E2	01A, 01B	**02A**		
	02A, 02B	**02B**		
Data Relay Board (Left Down) PKG50C3J1	01A	**01A**		
Data Relay Board (Center Up) PKG50C3J2	01A	**01A**		
Data Relay Board (Right Down) PKG50C3J3	01A	**01A**		
Common Relay PKG50C3E5	01A	**01A**		
Digital Board PKG50C3C4	01B-03	**02B-03** **01B-03**		
	02B-03			
	01B-01/01B-02	**02B-07** **01B-07**		
	01B-07/02B-07			
	01B-11	**02B-11** **01B-11**		
	02B-11			

9-878-234-01

Sony EMCS Corporation
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English
2004DL08-Data
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